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ABSTRACT

A non-traditional approach to professional training at the graduate level is described. Studies of professional practice are referenced to identify educational requirements for health and human service practitioners. Using a knowledge worker perspective, these requirements are translated into a professional education/learning environment in which the knowledge base of a given field interacts with the technology of practice. Examples from on-going non-traditional programs in health and human service administration and telecommunications management are used to illustrate the education/learning design. Special emphasis is given to the interaction of training and practice and the role of the professional knowledge base in career development. The use of information science technology as the core for a training delivery system is advocated. The results of research on the adult learner indicate that undergraduate models are insufficient guides to program design for the professional adult student. Models that may be promising are based on adult development and/or those that visualize the adult learner as a knowledge worker. (SW)

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TRAINING KNOWLEDGE WORKERS: A New Perspective On Graduate Education

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ABSTRACT:

Professional practice in an information society differs substantially from the work of doctors, engineers, and administrators in the past. The explosive growth of knowledge and advances in technology create a turbulent environment in which the modern professional must find ways to acquire new knowledge and skill on a continuing basis. These developments have made many forms of professional training obsolete and have set programmatic demands which many institutions have been unable to meet.

This paper describes a non-traditional approach to professional training at the graduate level. Studies of professional practice are referenced to identify educational requirements for health and human service practitioners. Using a knowledge worker perspective, these requirements are translated into a professional education/learning environment in which the knowledge base of a given field interacts with the technology of practice.

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Examples from on-going non-traditional programs in health and human service administration and telecommunications management are used to illustrate the education/learning design. Special emphasis is given to the interaction of training and practice and the role of the professional knowledge base in career development. The paper also makes a case for the use of information science technology as the core for a training delivery system.

THE NATURE OF THE ADULT LEARNER

Demographic changes in higher education are creating a new population of students, one which is older and more experienced. The number of American adults over 25 years of age who are returning to colleges and universities is increasing annually. At the same time, the population of traditionally aged students is experiencing a decline. This has an inevitable impact on the student population as a whole. Between 1974 and 1979, students on the nation's campuses between the ages of 25 and 30 increased by 26 percent; students between the ages of 18 and 24 years increased by ten percent (National Center for Educational Statistics, 1980). Hill, et.al., (1982) report that, in 1982, adults accounted for over 41 percent of the total college enrollment in the United States.

By and large, these students have been viewed from traditional perspectives by educators. Thus, teachers and administrators have attempted to fit the adult learner into

programs designed for the younger,full-time student. When any new approach has been attempted, it has frequently been characterized by examination of the social and personal correlates of academic performance among adult or professional students. (Cross, 1981; Morstan and Smart, 1977) These ways of looking at the adult learner can be shown to be of marginal value in assisting institutions in creating programs to meet the needs of working professionals. (Chaffin, 1985)

If institutions of higher learning are to respond appropriately to the emerging demand for adult programming, new models of students and subject matters must be devised. Perhaps, more importantly, delivery systems must be designed which will draw upon the above models to make effective use of scarce educational resources. In the paragraphs below, we review some developments which, we believe, hold significant promise for a new orientation to the adult learner. Where possible, we provide examples to assist potential users in adapting these models to other educational settings.

THE KNOWLEDGE WORKER

In recent years, more attention has been paid to adult development and employment as it impacts learning. Schlossberg (1984) provides a synthesis of the views of major theorists in which he highlights the work of Erikson (1950); this provides a framework for looking at the recurring themes of adulthood. Erikson, Neugarten,

Levinson, and others refute the belief that adulthood is a period of extended stability. Rather, each of these writers makes the point that adult life is a succession of periods of stability and change.

Adults adapt to various transitions in their lives and change interests, goals, and values as a result of life experiences. The early years of employment are labeled by Vaillant (1977) as years of career consolidation. During this time, adults translate their interests and ambitions into occupations. As the issues of career committment, satisfaction, and valuation of work are repeated over one's life span, individuals progress through recurring themes of stability and change.

It is important to recognize that the pattern of adult development referenced by the above writers is significantly changed by the work environment of the contemporary professional. The modern professional is characterized by his/her dependency upon knowledge. Professionals have, in effect, become knowledge workers; individuals whose central focus has to do with acquiring, organizing, and utilizing information in a variety of forms. (Ammentorp and James, 1984)

The emergence of the knowledge worker has been aided by several cost-related trends. For instance, labor costs have accelerated at an average of seven percent per year during the decade 1975-1985 while the costs of information technology have been declining. Communications costs have

decreased at a ten percent annual rate, electronics at a rate of twenty percent, and computer memory at an impressive forty percent. (Fronk, 1982) Thus, the balance between personnel costs and technology costs has favored rapid development and utilization of information technology in the professions.

The professional knowledge worker is, consequently, one who is in much closer touch with the information baase of his/her field. As Figure I suggests, the practicing knowledge worker draws upon the foundations of his/her field in an ongoing dialogue. This Figure also shows how training plays an integrative role in professional uses of knowledge. Through training in information technologies, the practitioner acquires competencies in utilizing databases within his/her field and relating data elements to theoretical knowledge or expertise. At the same time, new field-specific technologies can be applied to problem solving in practice.

FIGURE I

KNOWLEDGE AND
THE PROFESSIONS

The dotted lines in Figure I point to a critical feature of the new, knowledge based, professions. The professional is now not only a user of knowledge and technology, but a developer who adds to the expertise of the field. This brings the focus of new knowledge generation closer to the practitioner and results in rapid development of new information and understanding.

TOWARD A SUBJECT MATTTER MODEL

This dynamic relationship between the learner and the subject matter of the field has an important implication for higher education. In the past, subject matters have been relatively stable and, when changed, were almost totally under the control of the university. As the locus of control over subject matter moves in the direction of practice, the character of subject matter changes. We require, in effect, a new model of content to teach to the potential and needs of today's adult learner.

In Figure I we see that the conceptual foundations of the field index all aspects of professional expertise; technology, knowledge, and the working database. The distinction drawn in Figure I between concepts and knowledge is, of course, somewhat artificial. Concepts and knowledge are intimately linked and are the building blocks from which the working data of the field are constructed. It is these elements of subject matter which are most dynamic in the modern professions. In Figure II, we show how this knowledge base is under continual pressures for change from a variety of sources.

FIGURE II

KNOWLEDGE SYSTEMS

While all educators clearly recognize the impact of technology on knowledge, many fail to grasp the significance of other forces working to change subject matter. For example, the rapid growth of information technology is

dependent upon scientific advances in data storage and communication, but the economics of information and its social significance are the driving forces for its explosive growth as a subject matter. Each of these forces must be continually monitored and subject matters adjusted according to technological, economic, and social change.

This means that the structure of knowledge presented to the adult learner is not a fixed body of information ready to be mastered. Instead, it is a fluid collection of rules, concepts and strategies which must be acquired by each learner. (Sridharan, 1982) In a sense, the learner is attempting to acquire an expert perspective on his/her field so that he/she might apply information to novel problems.

The key point here is that the integration of knowledge and experience is the essence of professional learning. To quote Meltzer, "...all our knowledge at the last arises from experience and can only be validated by experience. Furthermore, our modes of cognition stem from our experiences of the world ... (1985, p42). An experience-based model of subject matter requires active engagement between the knowledge base and the learner. Accordingly, delivery systems for the adult learner must have a configuration quite unlike the traditional educational system.

A NEW DELIVERY SYSTEM DESIGN

Since the knowledge base is continually changing - and the practitioner is playing a central role in developing new

knowledge - it is essential that the adult learner acquire a structural perspective on the subject matter of his/her field. Learning must, in effect, be an ongoing dialog with experts concerning emerging concepts and rules for utilizing and applying knowledge. This can be facilitated in delivery systems which make use of computer technology to manage continuous conferences on topics of central importance to a particular field.

FIGURE III

DELIVERY SYSTEM
FOR TRAINING
KNOWLEDGE WORKERS

In this Figure we show a simple schematic of the relationships among the key elements of an instructional delivery system. The body of concepts and rules making up the subject matter of the field is stored in an abstracted form in a Database. This Database is linked to both Experts and Trainees through a Conference Interface. The Interface is a computer-controlled conference which is managed by the Expert. The conference is initiated by the Expert as he/she highlights critical concepts or issues in the subject matter. These become conference topics which can be read an commented upon by all participants.

In this system, knowledge evolves as all participants add their inputs to topics under discussion. The Trainee also benefits from the many perspectives of other participants and from the new knowledge which is generated as participants apply the results of the conference to

professional activities. (Meeks, 1985)

The authors are presently associated with Saint Marys College (Minnesota) in a delivery system design project using the above approach. The conference experts in this application are researchers in learning disabilities who work with a small, national team of persons with similar interests. These persons make up the foundation of the conference and are responsible for the construction of the initial database. .id5

Students at the College have access to the conference and can utilize research findings in their own work with learning disabled children. The results of these experiential tests are added to the conference database to provide guidance to researchers in applying medical models to learning problems.

This particular application is a primitive test of the concepts outlined in this paper. However, there are some preliminary conclusions which might be drawn by way of summary.

SUMMARY

* New Models Of The Learner Are Needed:

The results of research on the adult learner indicate that undergraduate models are insufficient guides to program design for the professional, adult student. Models which appear to hold some promise are those based on adult development and/or those which visulaize the adult learner as a knowledge worker.

* Dynamic Models Of Subject Matter Are Required:

The rapid changes in subject matter content and structure require models of knowledge which permit easy addition of new rules and concepts. At the same time, the subject matter model must accommodate the learner/knowledge worker as an active participant in generating and testing knowledge.

* Interactive Delivery Systems Are Indicated:

The importance of dialog in the above models is the key to design of effective delivery systems for knowledge worker training. These dialogs cannot be the structured interactions of traditional classrooms, but must provide for time and space flexibilities consistent with the role of the modern knowledge worker.

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FIGURE I

KNOWLEDGE AND THE PROFESSIONS

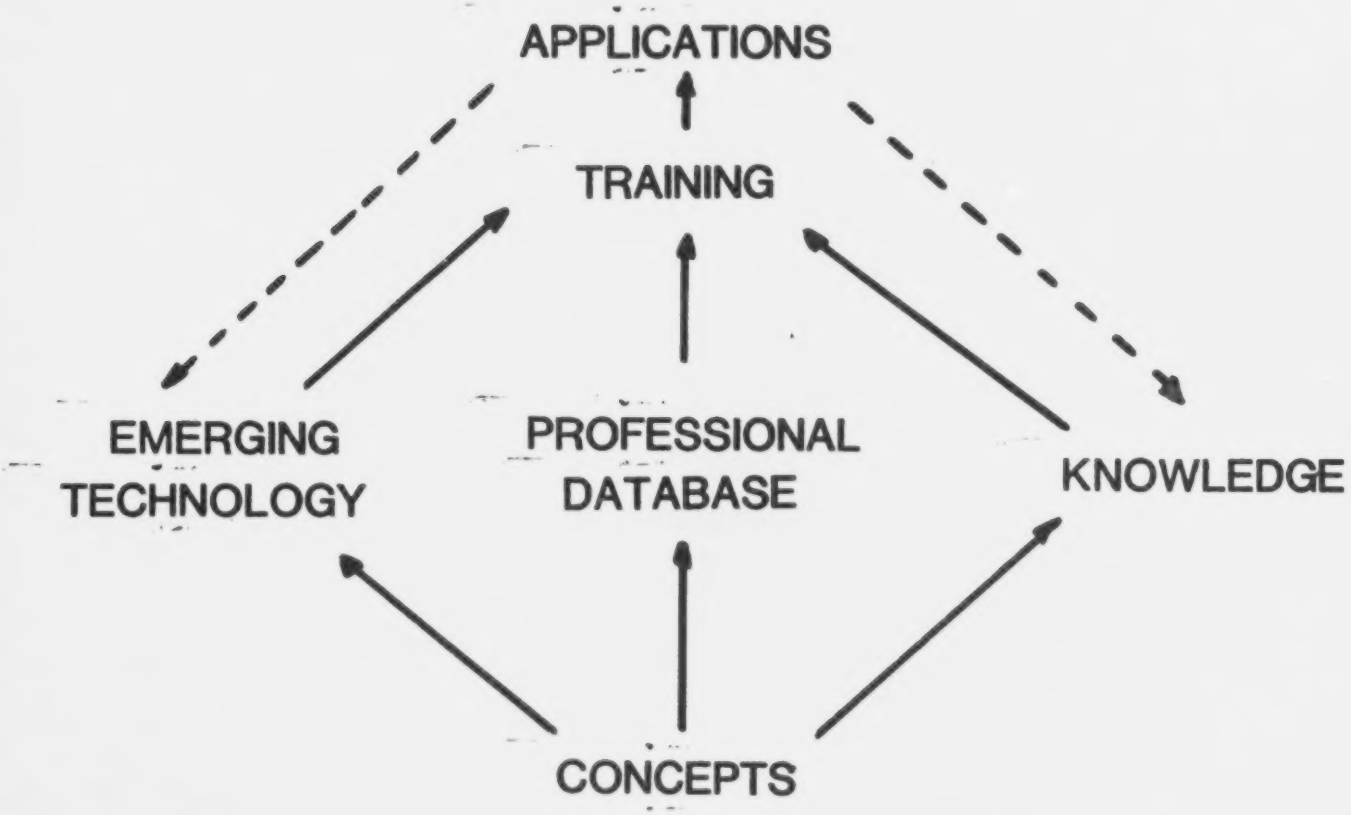

FIGURE II

KNOWLEDGE SYSTEMS

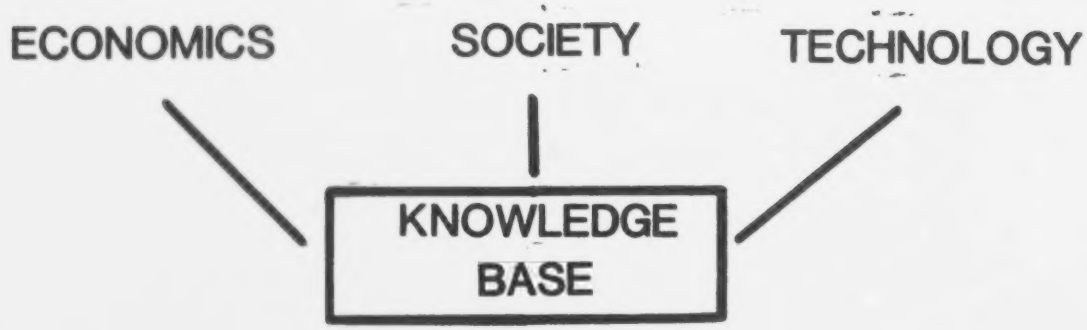

FIGURE III

DELIVERY SYSTEM FOR TRAINING KNOWLEDGE WORKERS